

Application No.: 10/627430

Case No.: 57982US004

REMARKS

Favorable reconsideration of original claims 1-14 and new claim 15 of this application in light of the amendments and the following discussion is respectfully requested. Claims 3 and 12 have been amended. New claim 15 has been added. Claims 1-15 are pending in this application for consideration.

AMENDMENTS TO THE SPECIFICATION

In response to the concerns raised by the Examiner, the specification has been amended as follows.

First, the structure representing the chemical formula of useful ammonia-generating compounds appearing at page 10, line 22 has been amended to eliminate any potential ambiguity. The text indicates that the structures referred to are "substituted and unsubstituted triazine derivatives. Triazine rings contain three ring nitrogens. The Examiner was concerned, however, that the structure provided may be read to indicate the nitrogens were external to the ring. The amended structure eliminates any potential ambiguity. Support for the new structure can be found at least in the specification at page 10, lines 20-21 (indicating the formula referred to represents triazine compounds, which one of ordinary skill in the art would know contains three ring nitrogens) and at page 10 lines 24-25 (indicating that specific useful triazine derivatives include hexahydro-1,3,5-s-triazine and acetaldehyde ammonia trimer, both of which contain three ring nitrogens). Thus, Applicants assert that no new matter has been added through this amendment.

Second, the chemical recitations at page 14, line 17 and 18 have been amended to indicate proper IUPAC nomenclature. Particularly, the prefixes "tri" and "di" have been amended to "tris" and "bis," respectively. Support for this amendment can be found at least at page 14 lines 3-19 in the specification as originally filed (describing the compounds named at lines 17 and 18). Applicants assert that no new matter has been added through this amendment.

Third, the reference at page 17, line 28 to "APFOA" has been amended to refer to "APFO." This corrects a facially obvious typographical error. Support for this amendment can be found at page 16, line 13, referring to a similar formulation and indicating the use of "APFO." Applicants aver that no new matter has been added through this amendment.

Finally, at page 16, line 32; page 17, line 18; page 18, lines 16 and 20; and page 19, Table 2, the units indicator for melt-flow index (MFI) have been amended from their original indication

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of grams per ten minutes, denoted g/10' to an amended indication of grams per ten minutes, denoted g/10 min. While Applicants respectfully assert that one of ordinary skill in the art would understand g/10' to indicate grams per ten minutes, the amended indication removes any potential ambiguity. Applicants assert that no new matter has been added through this amendment.

AMENDMENTS TO THE CLAIMS

In order to comply with the Examiner's objection, Claim 3 has been amended to correct a facially obvious typographical and grammatical error. The recitation of "upto" has been changed to "up to" according to traditional wording. The Applicants assert that no change in claim scope is effectuated by this amendment and no new matter has been added as a result of this amendment.

Claim 12 is also amended to correct a facially obvious grammatical and typographical mistake. The term "amounts" is corrected to appropriately refer to "amount." The Applicants assert that no change in claim scope is effectuated by this amendment and no new matter has been added as a result of this amendment.

Claim 15 has been added to the present application. Support for this claim can be found at least at page 2, line 27 through page 3, line 13 (particularly, page 3, lines 7-9). The Applicants assert that no new matter has been added with the addition of new claim 15.

CLAIM OBJECTION

Claim 3 was objected to for recitation of "upto." Appropriate correction is entered in this paper. The Applicants respectfully submit that the objection has been overcome and the claim is now in proper form.

CLAIM REJECTIONS

Rejection under 35 U.S.C. § 102

Wlassics

Claims 1-3 and 5-11 were rejected under 35 U.S.C. § 102(b) as purportedly anticipated by Wlassics et al. (U.S. Patent No. 5,656,697) [hereinafter Wlassics].

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The Examiner asserts that Wlassics discloses various copolymers, including the claimed tetrapolymer of VDF/HFP/TFE/CTFE.

Claim 1 of the present invention relates to a fluoropolymer suitable for the preparation of a fluoroelastomer. The fluoropolymer comprises 10 to 50 mole % of repeating units derived from tetrafluoroethylene; 15 to 40 mole % of repeating units derived from hexafluoropropylene; 25 to 59 mole % of repeating units derived from vinylidene fluoride; and 1 to 20 mole % of repeating units derived from chlorotrifluoroethylene. The fluoropolymer may optionally comprise one or more repeating units derived from fluorinated monomers other than tetrafluoroethylene, hexafluoropropylene, vinylidene fluoride and chlorotrifluoroethylene.

Applicants respectfully submit that Wlassics fails to describe a fluoropolymer suitable for the preparation of a fluoroelastomer as required in claim 1. The passage at column 1, lines 6–26, first cited by the Examiner, refers generally to fluoroelastomers and includes an extensive list of potential monomers. The second passage at column 3, lines 9–35, provides a similar list.

Wlassics does not teach the limitations of claim 1 that relate to the specific amount of each monomer unit present in the final fluoropolymer. As indicated at page 3, lines 5–22 of the present application, the fluoropolymer described in claim 1 can be produced at higher polymerization rates than corresponding THV copolymers that do not include units derived from the claimed amount of CTFE. Including CTFE in the amount claimed also improves bonding properties of the fluoropolymer to other substrates in the presence of an organic compound having one or more hydride functions MH wherein M is selected from the group consisting of Si, Ge, Sn and Pb. Also, by including the claimed amount of CTFE, a fluoropolymer according to claim 1 has a high fluorine content and maintains high flexibility and good sealability when cured to a fluoroelastomer. Based on the extensive list of component monomers described in Wlassics, one of ordinary skill in the art would have to engage in undue experimentation to arrive at the specific invention as claimed in claim 1.

Applicants respectfully submit that Wlassics does not teach every element of the invention described in claim 1 as the law requires. “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” MPEP 2131 (quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631) (emphasis added). Thus, Applicants kindly request that the rejection of claim 1 under 35 USC § 102(b) be withdrawn.

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Claims 2-3 and 5-11 each incorporate the limitations of claim 1 and add patentable features thereto. In light of the foregoing arguments with respect to claim 1, the Applicants kindly request that the rejection of claims 2-3 and 5-11 also be withdrawn.

Schlueter

Claims 1-3 were rejected under 35 U.S.C. § 102(e) as purportedly anticipated by Schlueter et al. (U.S. Patent No. 6,514,650 B1) [hereinafter Schleuter].

The Examiner asserts that Schlueter discloses the preparation of a tetrapolymer from VDF, HFP, TFE and a cure site monomer. The Examiner also asserts that Schlueter further discloses that the described fluoroelastomers may comprise repeating units from CTFE.

As indicated above, claim 1 relates to a fluoropolymer suitable for the preparation of a fluoroelastomer. The fluoropolymer comprises 10 to 50 mole % of repeating units derived from tetrafluoroethylene; 15 to 40 mole % of repeating units derived from hexafluoropropylene; 25 to 59 mole % of repeating units derived from vinylidene fluoride; and 1 to 20 mole % of repeating units derived from chlorotrifluoroethylene. The fluoropolymer may optionally comprise one or more repeating units derived from fluorinated monomers other than tetrafluoroethylene, hexafluoropropylene, vinylidene fluoride and chlorotrifluoroethylene.

Applicants respectfully submit that Schlueter does not describe a fluoropolymer suitable for the preparation of a fluoroelastomer as required in claim 1. The passage at column 1, lines 9-12, first cited by the Examiner, merely states that the invention "relates to thin composite coatings, wherein the coating is a perfluoropolymer, and in embodiments, a perfluoroelastomer. The composites can be used in a variety of applications in the electrostatographic or electrophotographic fields." The passage at column 4, lines 40-45 indicates a preference for a tetrapolymer of VDF, HFP, TFE and "a cure site monomer." Various commercial embodiments are listed but no percentage compositional limitations are mentioned. The passage at column 5, lines 40-46 refers generally to the use of chlorotrifluoroethylene.

Schlueter fails to teach the limitations of claim 1 that relate to the specific amount of each monomer unit present in the final fluoropolymer. As discussed above, a number of superior properties are found in the tetrapolymer described in claim 1 over those found in conventional THV formulations. Based on the bare-bones laundry-list statements in Schlueter, one of ordinary

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skill in the art would have to engage in undue experimentation to arrive at the specific invention as claimed in claim 1.

Applicants respectfully submit that Schuelter fails to teach every element of the invention described in claim 1 as the law requires. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP 2131 (quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631) (emphasis added). Thus, Applicants kindly request that the rejection of claim 1 under 35 USC § 102(b) be withdrawn.

Claims 2–3 each incorporate the limitations of claim 1 and add patentable features thereto. In light of the foregoing arguments with respect to claim 1, the Applicants kindly request that the rejection of claims 2–3 also be withdrawn.

Rejection under 35 U.S.C. § 103

Claims 4 and 12–14 were rejected under 35 U.S.C. § 103(a) as purportedly obvious over Wlassics or Schlueter, each individually in view of McCarthy et al. (U.S. Patent No. 5,955,556) [hereinafter McCarthy].

The Examiner properly admits that both Wlassics and Schlueter are both silent on using a bimodal or multimodal fluoropolymer as described in dependent claim 4. The Examiner also properly admits that both Wlassics and Schlueter are silent on polymer preparation involving a surfactant free process as described in claims 12–14. The Examiner then asserts that McCarthy teaches polymerization carried out with no surfactant and that such polymerization can lead to a bimodal product distribution.

As discussed above, Wlassics and Schlueter fail to teach, suggest or disclose the specific limitations described in claim 1. McCarthy also fails to teach, suggest or disclose a fluoropolymer having the specific composition as described in claim 1. Combining either Wlassics or Schlueter with McCarthy does not eliminate this shortcoming.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success.

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Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." See MPEP 2143 (emphasis added).

Claims 4 and 12-14 incorporate the limitations of claim 1 and add patentable features thereto. McCarthy fails to overcome the deficiency of Wlassics and Schlueter. Thus, Applicants submit that the rejection of claims 4 and 12-14 is improper and respectfully request that this rejection be withdrawn.

Conclusion

In view of the foregoing remarks, favorable reconsideration of the present application and the passing of this case to issue with all claims allowed are courteously solicited.

Should the Examiner wish to discuss any aspect of this application, applicants' attorney suggests a telephone interview in order to expedite the prosecution of the application.

Respectfully submitted,

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Date

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